SUBCHAPTER F : PERMITTING STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE STORAGE, PROCESSING, OR DISPOSAL FACILITIES

§335.151. Purpose, Scope and Applicability.

(a) The purpose of this subchapter is to establish minimum standards to define the acceptable management of hazardous waste. These standards are to be applied in the evaluation of an application for a permit to manage hazardous waste, pursuant to the Texas Solid Waste Disposal Act, Chapter 361 TEX. HEALTH & SAFETY CODE ANN. (Vernon Pamphlet 1992), and in the evaluation of an investigation report to implement groundwater protection requirements relating to compliance monitoring and corrective action; and in the evaluation of corrective action measures to be instituted pursuant to §335.167 of this title (relating to Corrective Action for Solid Waste Management Units). For facilities that store, process or dispose of industrial solid waste, in addition to hazardous waste, nothing herein shall be construed to restrict or abridge the commission's authority to implement the provisions of the Texas Water Code, Chapter 26, and §335.4 of this title (relating to General Prohibitions), with respect to those activities.

(b) The standards in this subchapter apply to owners and operators of all facilities which process, store or dispose of hazardous waste, except as specifically provided for in §335.41 of this title (relating to Purpose, Scope and Applicability).

(c) A facility owner or operator who has fully complied with the requirements for interim status, as defined in §3005(e) of the Resource Conservation and Recovery Act and §335.2 and §335.43 of this title (relating to Permit Required), must comply with the requirements of Subchapter E of this chapter (relating to Interim Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities) in lieu of the requirements of this subchapter, until final administrative disposition of his permit application is made, except as provided under Title 40 Code of Federal Regulations Part 264 Subpart S.

§335.152. Standards.

(a) The following regulations contained in 40 Code of Federal Regulations (CFR) Part 264 (including all appendices to Part 264) are adopted by reference as amended and adopted in the Code of Federal Regulations through June 1, 1990, at 55 FedReg 22685 and as further amended and adopted as indicated in each paragraph of this section:

(1) Subpart B--General Facility Standards (as amended through November 18, 1992, at 57 FedReg 54452); in addition, the facilities which are subject to 40 CFR Part 264, Subpart X, are subject to regulation under 40 CFR §§264.15(b)(4) and 264.18(b)(1)(ii);

(2) Subpart C -- Preparedness and Prevention;

(3) Subpart D--Contingency Plan and Emergency Procedures, except 40 CFR §264.56(d);

(4) Subpart E--Manifest System, Recordkeeping, and Reporting (as amended through January 29, 1992, at 57 FedReg 3462), except 40 CFR §§264.71, 264.72, 274.75, 264.76 and 264.77; facilities which are subject to 40 CFR Part 264, Subpart X, are subject to 40 CFR §264.73(b)(6);

(5) Subpart G--Closure and Post-Closure (as amended through August 18, 1992, at 57 FedReg 37194); facilities which are subject to 40 CFR Part 264, Subpart X, are subject to 40 CFR §§264.90(d), 264.111(c), 264.112(a)(2), 264.114, 264.117(a)(1)(i) and (ii), and 264.118(b)(1) and (2)(i) and (ii);

(6) Subpart H--Financial Requirements (as amended through June 10, 1994, in 59 FedReg 29958); except 40 CFR §264.142(a)(2); and subject to the limitations set forth in this section:

(A) Facilities which are subject to 40 CFR Part 264, Subpart X, are subject to 40 CFR §§264.142(a), 264.144(a) and 264.147(b);

(B) Facilities which qualify for the corporate guarantee for liability are additionally subject to 40 CFR §264.147(g)(2) and §264.151(h)(2); and

(C) The corporate guarantee for closure or for post-closure care, described in 40 CFR §264.143(f)(10) or §264.145(f)(11), respectively, may be provided only by a direct or higher-tier parent corporation of the owner or operator;

(7) Subpart I -- Use and Management of Containers;

(8) Subpart J--Tank Systems (as amended through August 31, 1993, at 58 FedReg 46040);

(9) Subpart K--Surface Impoundments (as amended and adopted through January 29, 1992, at 57 FedReg 3462), except 40 CFR §264.221 and §264.228:

(A) References to 40 CFR §264.221 are changed to §335.168 of this title (relating to Design and Operating Requirements)

(B) References to 40 CFR §264.228 are changed to §335.169 of this title (relating to Closure and Post Closure Care)

(10) Subpart L -- Waste Piles (as amended and adopted through January 29, 1992, at 57 FedReg 3462), except 40 CFR §264.251;

(11) Subpart M--Land Treatment, except 40 CFR §264.273 and §264.280;

(12) Subpart N--Landfills (as amended through November 18, 1992, at 57 FedReg 54452), except 40 CFR §§264.301, 264.310, 264.314 and 264.315;

(13) Subpart O -- Incinerators (as amended through February 21, 1991 at 54 FedReg 7207); and

(14) Subpart S -- Corrective Action for Solid Waste Management Units (as amended through February 16, 1993 at 58 FedReg 8683);

(15) Subpart W -- Drip Pads (as amended through December 24, 1992 at 57 Federal Regulations 61492);

(16) Subpart X -- Miscellaneous Units.

(17) Subpart AA -- Air Emission Standards for Process Vents (as amended through April 26, 1991 at 56 FedReg 19290);

(18) Subpart BB -- Air Emission Standards for Equipment Leaks (as amended through April 26, 1991, at 56 FedReg 19290);

(19) Subpart DD--Containment Buildings (as amended through August 18, 1992, at 57 FedReg 37194); and

(20) The following appendices contained in 40 CFR Part 264:

(A) Appendix I--Recordkeeping Instructions (as amended through March 24, 1994, at 59 FedReg 13891);

(B) Appendix IV--Cochron's Approximation to the Behrens-Fisher Students' T-Test;

(C) Appendix V--Examples of Potentially Incompatible Waste;

(D) Appendix VI--Political Jurisdictions in Which Compliance With §264.18(a) Must Be Demonstrated; and

(E) Appendix IX--Ground-Water Monitoring List.

(b) The provisions of 40 CFR §264.18(b) are applicable to owners and operators of hazardous waste management facilities, for which a permit is being sought, which are not subject to the requirements of §§335.201-335.206 of this title (relating to Location Standards for Hazardous Waste Storage, Processing, or Disposal). A copy of 40 CFR §264.18(b) is available for inspection at the library of the TNRCC, located on the first floor of Building A at 12100 Park 35 Circle, Austin, Texas.

(c) The regulations of the Environmental Protection Agency that are adopted by reference in this section are adopted subject to the following changes:

(1) The term "regional administrator" is changed to the "executive director" of the Texas Natural Resource Conservation Commission or to the commission, consistent with the organization of the commission as set out in the Texas Water Code, Chapter 5, Subchapter B.

(2) The term "treatment" is changed to "processing."

(3) References to §3008(h) of the Resource Conservation and Recovery Act are changed to the Texas Solid Waste Disposal Act, Texas Health & Safety Code Annotated (Vernon Pamphlet 1993), §361.303 (relating to Corrective Action).

(4) References to 40 Code of Federal Regulations §§260.10, 264.90, 264.101, 270.41, or 270.42, are changed to §335.1 of this title (relating to Definitions), §335.156 of this title (relating to Applicability of Groundwater Monitoring and Response), §335.167 of this title (relating to Corrective Action for Solid Waste Management Units), §305.62 of this title (relating to Amendment), or §305.69 of this title (relating to Solid Waste Permit Modification at the Request of the Permittee), respectively.

(5) References to 40 Code of Federal Regulations Part 264 Subpart F are changed to §335.156 of this title (relating to Applicability of Groundwater Monitoring and Response), §335.157 of this title (relating to Required Programs), §335.158 of this title (relating to Groundwater Protection Standard), §335.159 of this title (relating to Hazardous Constituents), §335.160 of this title (relating to Concentration Limits), §335.161 of this title (relating to Point of Compliance), §335.162 of this title (relating to Compliance Period), §335.163 of this title (relating to General Groundwater Monitoring Requirements), §335.164 of this title relating to Detection Monitoring Program), §335.165 of this title (relating to Compliance Monitoring Program), §335.166 of this title (relating to Corrective Action Program), and §335.167 of this title (relating to Corrective Action for Solid Waste Management Units).

(6) References to 40 Code of Federal Regulations Part 265 Subpart F are changed to include §335.116 of this title (relating Applicability of Groundwater Monitoring Requirements) and §335.117 of this title (relating to Recordkeeping and Reporting), in addition to the reference to 40 Code of Federal Regulations Part 265 Subpart F, except §265.90 and §265.94.

(7) References to the EPA are changed to the Texas Natural Resource Conservation Commission.

(d) A copy of 40 Code of Federal Regulations Part 264 is available for inspection at the library of the Texas Natural Resource Conservation Commission, located on the first floor of Building A at 12100 Park 35 Circle, Austin, Texas.

§335.153. Reporting of Emergency Situations by Emergency Coordinator.

If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he must report his findings as follows:

(1) If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate local officials decide whether local areas should be evacuated.

(2) He must immediately notify the commission according to procedures set out in the State of Texas Oil and Hazardous Substances Spill Contingency Plan. The report must include:

(A) name and telephone number of reporter;

(B) name and address of facility;

(C) time and place of incident (e.g., release, fire);

(D) name and quantity of material(s) involved, to the extent known;

(E) the extent of injuries, if any; and

(F) the possible hazards to human health, or the environment, outside the facility.

§335.154. Reporting Requirements for Owners and Operators.

(a) The owner or operator must prepare and submit to the executive director by January 25 of each year an annual report which covers facility activities during the previous calendar year and which contains the following information:

(1) the EPA identification number, name, and address of the facility;

(2) the calendar year covered by the report;

(3) the TWC hazardous waste code and a description and the quantity of each hazardous waste the facility received during the year;

(4) the method of storage, processing, or disposal for each hazardous waste;

(5) the most recent closure cost estimate under the regulations contained in 40 Code of Federal Regulations §264.142 which are in effect as of May 2, 1986, and §335.178 of this title (relating to Cost Estimate For Closure) and, for disposal facilities, the most recent post-closure cost estimate

under the regulations contained in 40 Code of Federal Regulations §264.144 which are in effect as of May 2, 1986;

(6) for generators who treat, store, or dispose of hazardous waste on-site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;

(7) for generators who treat, store, or dispose of hazardous waste on-site, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and

(8) The certification signed by the owner or operator of the facility or his authorized representative.

(b) An owner or operator receiving hazardous waste from off-site shall file a monthly summary in accordance with §335.15 of this title (relating to Recordkeeping and Reporting Requirements Applicable to Owners or Operators of Storage, Processing or Disposal Facilities). The annual report required by this section by such owners or operators need not include the information required by subsection (a)(3) and (4) of this section if such information has already been submitted pursuant to §335.15 of this title (relating to Recordkeeping and Reporting Requirements Applicable to Owners or Operators of Storage, Processing or Disposal Facilities).

§335.155. Additional Reports.

In addition to submitting the annual report and waste reports described in §335.15 of this title (relating to Recordkeeping and Reporting Requirements Applicable to Owners and Operators of Storage, Processing, or Disposal Facilities) and §335.154 of this title (relating to Reporting Requirements for Owners and Operators), the owner or operator must also report to the executive director:

(1) Releases, fires, and explosions as specified in 40 Code of Federal Regulations §264.56(j);

(2) Facility closure as specified in 40 Code of Federal Regulations §264.115;

(3) As otherwise required by 40 Code of Federal Regulations Part 264, Subparts F, K-N, X, AA and BB.

§335.156. Applicability of Groundwater Monitoring and Response.

(a) Except as provided in subsection (b) of this section, the rules pertaining to groundwater monitoring and response apply to owners and operators of facilities that process, store, or dispose of hazardous waste.

(1) The owner or operator must satisfy those requirements of paragraph (2) of this subsection for all wastes (or constituents thereof) contained in any such waste management unit at the facility, regardless of the time at which waste was placed in the units.

(2) All solid waste management units must comply with the requirements in §335.167 of this title (relating to Corrective Action for Solid Waste Management Units). A surface impoundment, waste pile, land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a regulated unit) must comply with the requirements of §§335.157-335.166 of this title (relating to Required Program; Groundwater Protection Standard; Hazardous Constituents; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program); in lieu of §335.167 of this title (relating to Corrective Action for Solid Waste Management Units) apply to regulated units.

(b) The owner or operator's regulated unit or units are not subject to regulation for releases into the uppermost aquifer under this section and §§335.157-335.166 of this title (relating to Required Programs; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program) if:

(1) He is exempted under 40 Code of Federal Regulations §264.1;

(2) He operates a unit which the commission finds:

(A) is an engineered structure;

(B) does not receive or contain liquid waste or waste containing free liquids;

(C) is designed and operated to exclude liquid, precipitation, and other run-on and run-off;

(D) has both inner and outer layers of containment enclosing the waste;

(E) has a leak detection system built into each containment layer for which continuing operation and maintenance will be provided during the active life of the unit and the closure and post-closure care periods; and

(F) to a reasonable degree of certainty, will not allow hazardous constituents to migrate beyond the outer containment layer prior to the end of the post-closure care period.

(3) The commission finds, pursuant to 40 Code of Federal Regulations §264.280(d), that the treatment zone of a land treatment unit that qualifies as a regulated unit does not contain levels of hazardous constituents that are above background levels of those constituents by an amount that is statistically significant, and if an unsaturated zone monitoring program meeting the requirements of 40

Code of Federal Regulations §264.278 has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under this paragraph can only relieve an owner or operator of responsibility to meet the requirements of this subchapter relating to groundwater monitoring and response during the post-closure care period; or

(4) The commission finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the post-closure care period specified under 40 Code of Federal Regulations §261.117. This demonstration must be certified by a qualified geologist or geotechnical engineer. In order to provide an adequate margin of safety in the prediction of potential migration of liquid, the owner or operator must base any predictions on assumptions that maximize the rate of liquid migration.

(5) He designs and operates a pile in compliance with 40 Code of Federal Regulations §264.250(c).

(c) This section and §§335.157-335.166 of this title (relating to Required Programs; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program) apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, these sections:

(1) do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure;

(2) apply during the post-closure care period under 40 Code of Federal Regulations §264.117 if the owner or operator is conducting a detection monitoring program under §335.164 of this title (relating to Detection Monitoring Program); or

(3) apply during the compliance period under §335.162 of this title (relating to Compliance Period) if the owner or operator is conducting a compliance monitoring program under §335.165 of this title (relating to Compliance Monitoring Program) or a corrective action program under §335.166 of this title (relating to Corrective Action Program).

§335.157. Required Programs.

(a) Owners and operators subject to §335.156 of this title (relating to Applicability of Groundwater Monitoring and Response); this section and §§335.158-335.166 of this title (relating to Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance, Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program, and Corrective Action Program) must conduct a monitoring and response program as follows:

(1) Whenever hazardous constituents under §335.159 of this title (relating to Hazardous Constituents) from a regulated unit are detected at the compliance point under §335.161 of

this title (relating to Point of Compliance), the owner or operator must institute a compliance monitoring program under §335.165 of this title (relating to Compliance Monitoring Program). "Detected" is defined as statistically significant evidence of contamination as described in §335.164(6) of this title (relating to Detection Monitoring Program).

(2) Whenever the groundwater protection standard under §335.158 of this title (relating to Groundwater Protection Standard) is exceeded, the owner or operator must institute a corrective action program under §335.166 of this title (relating to Corrective Action Program). "Exceeded" is defined as statistically significant evidence of increased contamination as described in §335.165(4) of this title (relating to Compliance Monitoring Program).

(3) Whenever hazardous constituents under §335.159 of this title (relating to Hazardous Constituents) from a regulated unit exceed concentration limits under §335.160 of this title (relating to Concentration Limits) in groundwater between the compliance point under §335.161 of this title (relating to Point of Compliance) and the downgradient facility property boundary, the owner or operator must institute a corrective action program under §335.166 of this title (relating to Corrective Action Program).

(4) In all other cases, the owner or operator must institute a detection monitoring program under §335.164 of this title (relating to Detection Monitoring Program).

(b) The commission will specify in the facility permit or in a compliance plan the specific elements of the monitoring and response program. The commission may include one or more of the programs identified in subsection (a) of this section in the facility permit or in a compliance plan as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. The commission will establish the programs identified in (a)(1) - (3) of this section in a compliance plan. If the owner or operator is not otherwise subject to compliance monitoring, the detection monitoring program will be established in the facility permit. In deciding whether to require the owner or operator to be prepared to institute a particular program, the commission will consider the potential adverse effects on human health and the environment that might occur before final administrative action to incorporate such a program could be taken.

§335.158. Groundwater Protection Standard.

The owner or operator must comply with conditions specified in the facility permit that are designed to ensure that hazardous constituents under §335.159 of this title (relating to Hazardous Constituents) which have been detected in the groundwater from a regulated unit do not exceed the concentration limits under §335.160 of this title (relating to Concentration Limits) in the uppermost aquifer underlying the waste management area beyond the point of compliance during the compliance period under §335.162 of this title (relating to Compliance Period). The commission will establish this groundwater protection standard in the compliance plan when hazardous constituents have been detected in the groundwater from a regulated unit.

§335.159. Hazardous Constituents.

(a) The commission will specify in the compliance plan the hazardous constituents to which the groundwater protection standard or §335.158 of this title (relating to Groundwater Protection Standard) applies. Hazardous constituents are constituents identified in Appendix VIII of 40 Code of Federal Regulations Part 261 that have been detected in groundwater in the uppermost aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the commission has excluded them under subsection (b) of this section.

(b) The commission will exclude an Appendix VIII constituent from the list of hazardous constituents specified in the compliance plan if it finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to grant an exemption, the commission will consider the following:

(1) Potentially adverse effects on groundwater quality, considering:

(A) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

(B) The hydrogeological characteristics of the facility and surrounding land;

(C) The quantity of groundwater and the direction of groundwater flow;

(D) The proximity and withdrawal rates of groundwater users;

(E) The current and future uses of groundwater in the area;

(F) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

(G) The potential for health risks caused by human exposure to waste constituents;

(H) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(I) The persistence and permanence of the potentially adverse effects; and

(2) Potentially adverse effects on hydraulically-connected surface water quality, considering:

(A) The volume and physical and chemical characteristics of the waste in the regulated unit;

(B) The hydrogeological characteristics of the facility and surrounding land;

(C) The quantity and quality of groundwater, and the direction of groundwater flow;

(D) The patterns of rainfall in the region;

(E) The proximity of the regulated unit to surface waters;

(F) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(G) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

(H) The potential for health risks caused by human exposure to waste constituents;

(I) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(J) The persistence and permanence of the potentially adverse effects.

(c) In making any determination under subsection (b) of this section about the use of groundwater in the area around the facility, the commission will consider any identification of underground sources of drinking water and exempted aquifers made under §331.13 of this title (relating to Exempted Aquifer).

§335.160. Concentration Limits.

(a) The commission will specify in the compliance plan concentration limits in the groundwater for hazardous constituents established under §335.159 of this title (relating to Hazardous Constituents). The concentration of a hazardous constituent:

(1) Must not exceed the background level of that constituent in the groundwater at the time that limit is specified in the plan;

(2) For any of the constituents listed in Table 1 of subsection (b)(1) of this section, must not exceed the respective value given in that table if the background level of the constituent is below the value given in Table 1; or

(3) Must not exceed an alternate limit established by the commission under subsection(b) of this section.

(b) The commission will establish an alternate concentration limit for a hazardous constituent if it finds that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the commission will consider the following:

(1) Potentially adverse effects on groundwater quality, considering the maximum concentration of constituents for groundwater protection described in the following Table 1:

Table 1

Maximum Concentration of constituents for Groundwater Protection

Constituent	Maximum Concentration[1]
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin (1, 2, 3, 4, 10.10-hexachloro-1,7-epoxy-1, 4, 4a, 5, 6, 7, 8, 9a-octahydro-1, 4-endo, endo-5,8-dimethano naphthalene)	0.0002
Lindane (1, 2, 3, 4, 5, 6-hexachlorocyclohexane, gamma isomar)	0.004
Methoxychlor (1, 1,1-Trichloro-2, 2-bis (p-methoxy-phenylethane)	0.1
Toxaphene (C(--H(--C1, Technical chlorinated camphene, 67-69 percent chlorine)	0.005
2-4-D 2m 4-Dichlorophenoxyacetic acid)	0.1
2, 4, 5-TP Silvex (2, 4, 5-Trichlorophenoxypropionic acid	0.01

[1]Milligrams per liter.

(A) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

(B) The hydrogeological characteristics of the facility and surrounding land;

(C) The quantity of groundwater and the direction of groundwater flow;

(D) The proximity and withdrawal rates of groundwater users;

(E) The current and future uses of groundwater in the area;

(F) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

(G) The potential for health risks caused by human exposure to waste constituents;

(H) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(I) The persistence and permanence of the potentially adverse effects; and

(2) Potentially adverse effects on hydraulically-connected surface-water quality, considering:

(A) The volume and physical and chemical characteristics of the waste in the regulated unit;

(B) The hydrogeological characteristics of the facility and surrounding land;

(C) The quantity and quality of groundwater, and the direction of groundwater flow;

(D) The patterns of rainfall in the region;

(E) The proximity of the regulated unit to surface waters;

(F) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(G) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;

(H) The potential for health risks caused by human exposure to waste constituents;

(I) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(J) The persistence and permanence of the potentially adverse effects.

(c) In making any determination under subsection (b) of this section about the use of groundwater in the area around the facility the commission will consider any identification of underground sources of drinking water and exempted aquifers made under §331.13 of this title (relating to Exempted Aquifer).

§335.161. Point of Compliance.

(a) The commission will specify in the facility permit the point of compliance at which the groundwater protection standard of §335.158 of this title (relating to Groundwater Protection Standard) applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units.

(b) The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.

(1) The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit;

(2) If the facility contains more than one regulated unit, the waste management area may be described in the following manner:

(A) By an imaginary line circumscribing the several regulated units;

(B) By an imaginary line circumscribing geographically proximate regulated units;

(C) By an imaginary line circumscribing individually regulated units; or

(D) A combination of subparagraphs (B) and (C) of this paragraph.

§335.162. Compliance Period.

(a) The commission will specify in the compliance plan the compliance period during which the groundwater protection standard of §335.158 of this title (relating to Groundwater Protection Standard) applies. The compliance period is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting and the closure period).

(b) The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of §335.165 of this title (relating to Compliance Monitoring program).

(c) If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in subsection (a) of this section, the compliance period is extended until the owner or operator can demonstrate that the groundwater protection standard of §335.158 of this title (relating to Groundwater Protection Standard) has not been exceeded for a period of three consecutive years.

§335.163. General Groundwater Monitoring Requirements.

If a facility contains more than one waste management area, separate groundwater monitoring systems must be installed. The owner or operator must comply with the following requirements for any groundwater monitoring program developed to satisfy §335.164-335.166 of this title (relating to Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program).

(1) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that:

(A) Represent the quality of background water that has not been affected by leakage from a regulated unit;

(i) A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; and

(ii) Sampling at other wells will provide an indication of background groundwater quality that is representative or more representative than that provided by the upgradient wells;

(B) Represent the quality of groundwater passing the point of compliance; and

(C) Allow for detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer.

(2) If a waste management area contains more than one regulated unit, separate groundwater monitoring systems are not required for each regulated unit provided that provisions for sampling the groundwater in the uppermost aquifer will enable detection and measurement at the compliance point of hazardous constituents from the regulated units that have entered the groundwater in the uppermost aquifer.

(3) All monitoring wells must be cased in a manner that maintains the integrity of the monitoring-well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(4) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the waste management area. At a minimum the program must include procedures and techniques for:

(A) Sample collection;

(B) Sample preservation and shipment;

(C) Analytical procedures; and

(D) Chain of custody control.

(5) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents in groundwater samples.

(6) The groundwater monitoring program must include a determination of the groundwater surface elevation each time groundwater is sampled.

(7) In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wells and wells at the compliance point(s). The number and kinds of samples collected to establish background shall be appropriate for the form of statistical test employed and shall follow generally accepted statistical principles. The sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant released to groundwater from a facility will be detected. The owner or operator will determine an appropriate sampling procedure and interval for each hazardous constituent listed in the facility permit. This sampling procedure shall be:

(A) A sequence of at least four samples, taken at an interval that assures, to the greatest extent technically feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, and hydraulic gradient, and the fate and transport characteristics of the potential contaminants, or

(B) an alternate sampling procedure proposed by the owner or operator of the facility and approved by the commission.

(8) The owner or operator will specify one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent which, upon approval by the commission, will be specified in the facility's permit on a unit by unit basis. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. Where practical quantification limits (PQLs) are used in any of the following statistical procedures to comply with subparagraph (9)(E) of this section, the PQL must be proposed by the owner or operator and approved by the executive director. Use of any of the following statistical methods must be protective of human health and the environment and must comply with the performance standards outlined in paragraph (9) of this section.

(A) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method

must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(B) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(C) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(D) A control chart approach that gives control limits for each constituent.

(E) Another statistical test method submitted by the owner or operator and approved by the executive director.

(9) Any statistical method chosen under paragraph (8) of this section for specification in the unit permit shall comply with the following performance standards, as appropriate.

(A) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(B) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals or control charts.

(C) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be proposed by the owner or operator and approved by the commission if it finds it to be protective of human health and the environment.

(D) If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be proposed by the owner or operator and approved by the commission if it finds these parameters to be protective of human health and the environment.

These parameters will be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(E) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any PQL approved by the executive director under paragraph (8) of this section that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(F) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(10) Groundwater monitoring data collected in accordance with paragraph (7) of this section including actual levels of constituents must be maintained in the facility operating record. The commission will specify in the permit when the data must be submitted for review.

§335.164. Detection Monitoring Program.

An owner or operator required to establish a detection monitoring program must, at a minimum, discharge the following responsibilities:

(1) The owner or operator must monitor for indicator parameters (e.g., specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in groundwater. The commission will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:

(A) The types, quantities, and concentrations of constituents in wastes managed at the regulated unit;

(B) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;

(C) The detectability of indicator parameters, waste constituents, and reaction products in groundwater; and

(D) The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the groundwater background.

(2) The owner or operator must install a groundwater monitoring system at the compliance point as specified under §335.161 of this title (relating to Point of Compliance). The groundwater monitoring system must comply with §335.163(1)(B), (2), and (3) of this title (relating to General Groundwater Monitoring Requirements).

(3) The owner or operator must conduct a groundwater monitoring program for each chemical parameter and hazardous constituent specified in its permit pursuant to paragraph (1) of this section in accordance with §335.163(7) of this title (relating to General Groundwater Monitoring Requirements). The owner or operator must maintain a record of groundwater analytical data as measured and in a form necessary for the determination of statistical significance under §335.163(8) of this title (relating to General Groundwater Monitoring Requirements).

(A) The owner or operator must comply with §335.163(7) of this title (relating to General Groundwater Monitoring Requirements) in developing the data base used to determine background values.

(B) The owner or operator must express background values in a form necessary for the determination of statistically significant increases under §335.163(8) of this title (relating to General Groundwater Monitoring Requirements).

(C) In taking samples used in the determination of background values, the owner or operator must use a groundwater monitoring system that complies with §335.163(1)(A), (2), and (3) of this title (relating to General Groundwater Monitoring requirements.

(4) The commission will specify the frequencies for collecting samples and conducting statistical tests to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in the permit under paragraph (1) of this section in accordance with §335.163(7) of this title (relating to General Groundwater Monitoring Requirements). A sequence of at least four samples from each well (background and compliance wells) must be collected at least semi-annually during detection monitoring.

(5) The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

(6) The owner or operator must determine whether there is statistically significant evidence of contamination for any chemical parameter or hazardous constituent specified in the permit pursuant to paragraph (1) of this section at a frequency specified under paragraph (4) of this section.

(A) In determining whether statistically significant evidence of contamination exists, the owner or operator must use the method(s) specified in the permit under §335.163(8) of this title (relating to General Groundwater Monitoring Requirements). These method(s) must compare data collected at the compliance point(s) to the background groundwater quality data.

(B) The owner or operator must determine whether there is statistically significant evidence of contamination at each monitoring well at the compliance point within a reasonable period of time after completion of sampling. The commission will specify in the facility permit what period of time is reasonable, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(7) If the owner or operator determines pursuant to paragraph (6) of this section that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to paragraph (1) of this section at any monitoring well at the compliance point, he must:

(A) Notify the executive director of this finding in writing within seven days. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination;

(B) Immediately sample the groundwater in all monitoring wells and determine whether constituents in the list of Appendix IX of 40 CFR Part 264 are present, and if so, in what concentration.

(C) For any Appendix IX compounds found in the analysis pursuant to subparagraph (B) of this paragraph, the owner or operator may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the owner or operator does not resample for the compounds found pursuant to subparagraph (B) of this paragraph, the hazardous constituents found during this initial Appendix IX analysis will form the basis for compliance monitoring.

(D) Within 90 days, submit to the executive director an application for a permit amendment or modification to establish a compliance monitoring program meeting the requirements of §335.165 of this title (relating to Compliance Monitoring Program). The application must include the following information:

(i) An identification of the concentration of any Appendix IX constituent detected in the groundwater at each monitoring well at the compliance point;

(ii) Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of §335.165 of this title (relating to Compliance Monitoring Program);

(iii) Any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of §335.165 of this title (relating to Compliance Monitoring Program); and

(iv) For each hazardous constituent detected at the compliance point, a proposed concentration limit under §335.160(a)(1) or (2) of this title (relating to Concentration Limits), or a notice of intent to seek an alternate concentration limit under §335.160(b) of this title (relating to Concentration Limits);

(E) Within 180 days, submit to the executive director:

(i) All data necessary to justify an alternate concentration limit sought under §335.160(b) of this title (relating to Concentration Limits);

(ii) An engineering feasibility plan for a corrective action program necessary to meet the requirements of §335.166 of this title (relating to Corrective Action Program, unless:

(I) All hazardous constituents identified under paragraph (7)(B) of this section are listed in Table 1 of §335.160 of this title (relating to Concentration Limits) and their concentrations do not exceed the respective values given in that Table; or

(II) The owner or operator has sought an alternate concentration limit under §335.160(b) of this title (relating to Concentration Limits) for every hazardous constituent identified under paragraph (7)(B) of this section.

(F) If the owner or operator determines, pursuant to paragraph (6) of this section, that there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to paragraph (1) of this section at any monitoring well at the compliance point, he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the groundwater. The owner operator may make a demonstration under this paragraph in addition to, or in lieu of, submitting a permit amendment or modification application under paragraph (7)(D) of this section; however, the owner or operator is not relieved of the requirement to submit a permit amendment or modification application within the time specified in paragraph (7)(D) of this section unless the demonstration made under this paragraph successfully shows that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. In making a demonstration under this paragraph, the owner or operator must:

(i) Notify the executive director in writing within seven days of determining statistically significant evidence of contamination at the compliance point that he intends to make a demonstration under this paragraph;

(ii) Within 90 days, submit a report to the executive director which demonstrates that a source other than a regulated unit caused the contamination or that the contamination resulted from error in sampling, analysis, or evaluation;

(iii) Within 90 days, submit to the executive director an application for a permit amendment or modification to make any appropriate changes to the detection monitoring program at the facility; and

(iv) Continue to monitor in accordance with the detection monitoring program established under this section.

(8) If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of this section, he must, within 90 days, submit an application for a permit amendment or modification to make any appropriate changes to the program.

Adopted February 7, 1996 Effective March 1, 1996

§335.165. Compliance Monitoring Program.

An owner or operator required to establish a compliance monitoring program must, at a minimum, discharge the following responsibilities:

(1) The owner or operator must monitor the groundwater to determine whether regulated units are in compliance with the groundwater protection standard under §335.158 of this title (relating to Groundwater Protection Standard). The commission will specify the groundwater protection standard in the compliance plan, including:

(A) A list of the hazardous constituents identified under §335.159 of this title (relating to Hazardous Constituents);

(B) Concentration limits under §335.160 of this title (relating to Concentration Limits) for each of those hazardous constituents;

(C) The compliance point under §335.161 of this title (relating to Point of Compliance); and

(D) The compliance period under §335.162 of this title (relating to Compliance Period).

(2) The owner or operator must install a groundwater monitoring system at the compliance point as specified under §335.161 of this title (relating to Point of Compliance). The groundwater monitoring system must comply with §335.163(1)(B), (2), and (3) of this title (relating to General Groundwater Monitoring Requirements).

(3) The commission will specify the sampling procedures and statistical methods appropriate for the constituents at the facility, consistent with §335.163(7) and (8) of this title (relating to General Groundwater Monitoring Requirements).

(A) The owner or operator must conduct a sampling program for each chemical parameter or hazardous constituent in accordance with §335.163(7) of this title (relating to General Groundwater Monitoring Requirements).

(B) The owner or operator must record groundwater analytical data as measured by and in a form necessary for the determination of statistical significance under §335.163(8)

of this title (relating to General Groundwater Monitoring Requirements) for the compliance period of the facility.

(4) The owner or operator must determine whether there is statistically significant evidence of increased contamination for any chemical parameter or hazardous constituent specified in the permit, pursuant to paragraph (1) of this section, at a frequency specified under paragraph (6) under this section.

(A) In determining whether statistically significant evidence of increased contamination exists, the owner or operator must use the method(s) specified in the permit under §335.163(8) of this title (relating to General Groundwater Monitoring Requirements). The method(s) must compare data collected at the compliance point(s) to a concentration limit developed in accordance with §335.163 of this title (relating to General Groundwater Monitoring Requirements).

(B) The owner or operator must determine whether there is statistically significant evidence of increased contamination at each monitoring well at the compliance point within a reasonable time period after completion of sampling. The commission will specify that time period in the facility permit after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of ground-water samples.

(5) The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

(6) The commission will specify the frequencies for collecting samples and conducting statistical tests to determine statistically significant evidence of increased contamination in accordance with §335.163(7) of this title (relating to General Groundwater Monitoring Requirements). A sequence of at least four samples from each well (background and compliance wells) must be collected at least semi-annually during the compliance period of the facility.

(7) The owner or operator must analyze samples from all monitoring wells at the compliance point for all constituents contained in Appendix IX of 40 CFR Part 264 at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer and, if so, at what concentration, pursuant to procedures in §335.164(6) of this title (relating to Detection Monitoring Program). If the owner or operator finds Appendix IX constituents in the groundwater that are not already identified in the permit as monitoring constituents, the owner or operator may resample within one month and repeat the Appendix IX analysis. If the second analysis confirms the presence of new constituents, the owner or operator must report the concentration of these additional constituents to the executive director within seven days after the completion of the second analysis and add them to the monitoring list. If the owner or operator chooses not to resample, then he must report the concentrations of these additional constituents to the executive director within seven days after completion of the initial analysis and add them to the monitoring list.

(8) If the owner or operator determines, pursuant to paragraph (4) of this section, that any concentration limits under §335.160 of this title (relating to Concentration Limits) are being exceeded at any monitoring well at the point of compliance he must:

(A) Notify the executive director of this finding in writing within seven days. The notification must indicate what concentration limits have been exceeded.

(B) Submit to the executive director an investigation report to establish a corrective action program meeting the requirements of §335.166 of this title (relating to Corrective Action Program) within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the executive director under §335.164(7)(E) of this title (relating to Detection Monitoring Program). The report must at a minimum include the following information:

(i) A detailed description of corrective actions that will achieve compliance with the groundwater protection standard specified in the permit under paragraph (1) of this section; and

(ii) A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program developed to meet the requirements of this section.

(9) If the owner or operator determines, pursuant to paragraph (4) of this section, that the groundwater concentration limits are being exceeded at any monitoring well at the point of compliance, he may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by error in sampling, analysis, or evaluation or natural variation in groundwater. In making a demonstration under this subsection, the owner or operator must:

(A) Notify the executive director in writing within seven days that he intends to make a demonstration under this section;

(B) Within 90 days submit a report to the executive director which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis or evaluation;

(C) Within 90 days submit to the executive director an application for a compliance plan amendment or compliance modification to make any appropriate change to the compliance monitoring program at the facility; and

(D) Continue to monitor in accord with the compliance monitoring program established under this section.

(10) If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of this section, he must, within 90 days, submit an application for a plan modification to make any appropriate changes to the program.

(11) The owner or operator shall prepare an annual summary to include the groundwater quality data and groundwater flow rate and direction required under paragraphs (3) and (5) of this section. Such annual summary shall be submitted to the executive director by January 21 of each year on forms provided or approved by the executive director. An owner or operator must keep a copy of the summary for a period of at least three years from the due date of the summary. The period of record retention required by this section is automatically extended during the course of any unresolved enforcement action regarding the regulated activity.

§335.166. Corrective Action Program.

An owner or operator required to establish a corrective action program must, at a minimum, discharge the following responsibilities:

(1) The owner or operator must take corrective action to ensure that regulated units are in compliance with the groundwater protection standard under §335.158 of this title (relating to Groundwater Protection Standard). The commission will specify the groundwater protection standard in the compliance plan, including:

(A) A list of the hazardous constituents identified under §335.159 of this title (relating to Hazardous Constituents);

(B) Concentration limits under §335.160 of this title (relating to Concentration Limits) for each of those hazardous constituents;

(C) The compliance point under §335.161 of this title (relating to Point of Compliance); and

(D) The compliance period under §335.162 of this title (relating to Compliance Period).

(2) The owner or operator must implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. The plan will specify the specific measures that will be taken.

(3) The owner or operator must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded. The commission will specify that time period in the plan. If a compliance plan includes a corrective action program in addition to a compliance monitoring program, the plan will specify when the corrective action will begin and such a requirement will operate in lieu of §335.165(9)(B) of this title (relating to Compliance Monitoring Program).

(4) In conjunction with a corrective action program, the owner or operator must establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Such a monitoring program may be based on the requirements for a

compliance monitoring program under §335.165 of this title (relating to Compliance Monitoring Program) and must be as effective as that program in determining compliance with the groundwater protection standard under paragraph (5) of this section, where appropriate.

(5) In addition to the other requirements of this section, the owner or operator must conduct a corrective action program to remove or treat in place any hazardous constituents under §335.159 of this title (relating to Hazardous Constituents) that exceed concentration limits under §335.160 of this title (relating to Concentration Limits) in groundwater between the compliance point under §335.161 of this title (relating to Point of Compliance) and the downgradient facility property boundary and beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the executive director that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. The plan will specify the measures to be taken.

(A) Corrective action measures under this section must be initiated and completed within a reasonable period of time considering the extent of contamination.

(B) Corrective action measures under this section may be terminated once the concentration of hazardous constituents under §335.159 of this title (relating to Hazardous Constituents) is reduced to levels below their respective concentration under §335.160 of this title (relating to Concentration Limits).

(6) The owner or operator must continue corrective action measures during the compliance period to the extent necessary to ensure that the groundwater protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, he must continue that corrective action for as long as necessary to achieve compliance with the groundwater protection standard. The owner or operator may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if he can demonstrate, based on data from the groundwater monitoring program under paragraph (4) of this section, that the groundwater protection standard of §335.158 of this title (relating to Groundwater Protection Standard) has not been exceeded for a period of three consecutive years.

(7) The owner or operator must report in writing to the executive director on the effectiveness of the corrective action program. The owner or operator must submit these reports semiannually.

(8) If the owner or operator determines that the corrective action program no longer satisfies the requirements of this section, he must, within 90 days, submit an application for a plan modification to make any appropriate changes to the program.

§335.167. Corrective Action for Solid Waste Management Units.

(a) The owner or operator of a facility seeking a permit for the processing, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit.

(b) Corrective action will be specified in the compliance plan under §305.401 of this title (relating to Groundwater Compliance Plan) and in accordance with this section, 40 Code of Federal Regulations Part 264 Subpart S, and §335.152 of this title (relating to Standards). The plan will contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit or plan) and assurances of financial responsibility for completing such corrective action.

(c) The owner or operator must implement corrective actions beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the executive director that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided to the executive director.

§335.168. Design and Operating Requirements (Surface Impoundments).

(a) Any surface impoundment that is not covered by subsection (c) of this section or 40 Code of Federal Regulations §265.221 must have a liner for all portions of the impoundment (except for existing portions of such impoundments). The liner must be designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil or groundwater or surface water at any time during the active life (including the closure period) of the impoundment. The liner may be constructed of materials that may allow wastes to migrate into the liner (but not into the adjacent subsurface soil or groundwater or surface water) during the active life of the facility, provided that the impoundment is closed in accordance with §335.169(a)(1)of this title (relating to Closure and Post-closure Care (Surface Impoundments)). For impoundments that will be closed in accordance with §335.169(a)(2) of this title (relating to Closure and Post-closure Care (Surface Impoundments)), the liner must be constructed of materials that can prevent wastes from migrating into the liner during the active life of the facility. The liner must be:

(1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(2) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(3) Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

(b) The owner or operator will be exempted from the requirements of subsections (a) and (i) of this section if the commission finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see §335.159 of this title (relating to Hazardous Constituents)) into the groundwater or surface water at any future time. In deciding whether to grant an exemption, the commission will consider:

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the impoundment and groundwater or surface water; and

(4) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

(c) The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction commences after July 29, 1992, and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992, must meet the requirements of 40 CFR §264.221(c), as amended through January 29, 1992, at 57 FedReg 3487.

(d) The executive director may approve alternative design or operating practices to those specified in subsection (c) of this section if the owner or operator demonstrates to the executive director that he meets the requirements of 40 CFR §264.221(d), as amended through January 29, 1992, at 57 FedReg 3462.

(e) The double liner requirement set forth in subsection (c) of this section may be waived by the Commission for any monofill which contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the Toxicity Characteristics in 40 CFR §261.24, and is in compliance with either of the following requirements:

(1) The monofill:

(A) Has at least one liner for which there is no evidence that such liner is leaking. For the purposes of this subsection, the term "liner" means a liner designed, constructed, installed, and operated to prevent hazardous waste from passing into the liner at any time during the active life of the facility, or a liner designed, constructed, installed, and operated to prevent hazardous

waste from migrating beyond the liner to adjacent subsurface soil, groundwater, or surface water at any time during the active life of the facility. In the case of any surface impoundment which has been exempted from the requirements of subsection (c) of this section on the basis of a liner designed, constructed, installed, and operated to prevent hazardous waste from passing beyond the liner, at the closure of such impoundment, the owner or operator must remove or decontaminate all waste residues, all contaminated liner material, and contaminated soil to the extent practicable. If all contaminated soil is not removed or decontaminated, the owner or operator of such impoundment will comply with appropriate post-closure requirements, including but not limited to groundwater monitoring and corrective action;

(B) Is located more than one-quarter mile from an underground source of drinking water (as that term is defined in §331.2 of this title (relating to Definitions); and

(C) In compliance with groundwater monitoring requirements of this subchapter; or

(2) The owner or operator demonstrates that the monofill is located, designed and operated so as to assure that there will be no migration of any hazardous constituent into groundwater or surface water at any future time.

(f) The owner or operator of any replacement surface impoundment unit is exempt from subsection (c) of this section if:

(1) The existing unit was constructed in compliance with the design standards of §3004 (o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

(2) There is no reason to believe that the liner is not functioning as designed.

(g) A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations, overfilling, wind, and wave action; rainfall; run-off, malfunctions of level controllers, alarms, and other equipment; and human error.

(h) A surface impoundment must have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit.

(i) The commission will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

(j) A surface impoundment (except for an existing portion of a surface impoundment) that will be closed in accordance with §335.169(a)(2) of this title (relating to Closure and Post-Closure Care (Surface Impoundments)) must have an additional liner to that required in subsection (a) of this section which:

(1) prevents any migration of wastes out of the impoundment to the adjacent subsurface soil or groundwater or surface water at any time prior to the end of the post-closure care period; and

(2) minimizes the rate of migration of wastes out of the impoundment to the adjacent subsurface soil or groundwater or surface water so as not to pose a substantial present or potential hazard to human health and the environment.

Adopted January 30, 1996 Effective February 26, 1996

§335.169. Closure and Post-Closure Care (Surface Impoundments).

(a) At closure, the owner or operator must:

(1) Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.) contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless 40 Code of Federal Regulations §261.3(d) applies; or

(2) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues; stabilize remaining wastes to a bearing capacity sufficient to support final cover; and cover the surface impoundment with a final cover designed and constructed to:

(A) Provide long-term minimization of the migration of liquids through the closed impoundment;

(B) Function with minimum maintenance;

(C) Promote drainage and minimize erosion or abrasion of the final cover;

(D) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(E) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(b) If some waste residues or contaminated materials are left in place at final closure, the owner or operator must comply with all post-closure requirements contained in 40 Code of Federal Regulations (CFR) §§264.117-264.120, including maintenance and monitoring throughout the post-closure care period (specified in the permit under 40 CFR §264.117). The owner or operator must:

(1) maintain the integrity and effectiveness of the final cover including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(2) maintain and monitor the leak detection system in accordance with 40 CFR §§264.221(c)(2)(iv) and (3) and 264.226(d), and comply with all other applicable leak detection system requirements of this subchapter;

(3) maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of §§335.156-335.166 of this title (relating to Applicability of Groundwater Monitoring and Response; Required Programs; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program); and

(4) prevent run-on and run-off from eroding or otherwise damaging the final cover.

(c) If an owner or operator plans to close a surface impoundment in accordance with subsection (a)(1) of this section, and the impoundment does not comply with the liner requirements of §335.168(a) of this title (relating to Design and Operating Requirements (Surface Impoundments)) and is not exempt from them in accordance with §335.168(b) of this title (relating to Design and Operating Requirements (Surface Impoundments)) then:

(1) the closure plan for the impoundment under 40 Code of Federal Regulations §264.112 must include both a plan for complying with subsection (a)(1) of this section and a contingent plan for complying with subsection (a)(2) of this section in case not all contaminated subsoils can be practicably removed at closure; and the owner or operator must prepare a contingent post-closure plan under 40 Code of Federal Regulations §264.118 for complying with subsection (b) of this section in case not all contaminated subsoils can be practicably removed at closure.

(2) the cost estimates calculated under 40 Code of Federal Regulations §264.142 and §264.144 for closure and post-closure care of an impoundment subject to this subsection must include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under subsection (a)(1) of this section.

Adopted January 30, 1996 Effective February 26, 1996

§335.170. Design and Operating Requirements (Waste Piles).

(a) A waste pile (except for an existing portion of a waste pile) must have:

(1) a liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or groundwater or surface water at any time during the active life (including the closure period) of the waste pile. The liner may be constructed of materials that may allow waste to migrate into the liner itself (but not into the adjacent subsurface soil or groundwater or surface water) during the active life of the facility. The liner must be:

(A) constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(B) placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(C) installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(2) A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. The commission will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 centimeters (one foot). The leachate collection and removal system must be:

(A) Constructed of materials that are:

(i) Chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

(ii) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

(B) Designed and operated to function without clogging through the scheduled closure of the waste pile.

(b) The owner or operator will be exempted from the requirements of subsection (a) of this section if the commission finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents into the groundwater or surface water at any future time. In deciding whether to grant an exemption, the commission will consider:

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including attenuative capacity and thickness of the liners and soils present between the pile and groundwater or surface water; and

(4) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

(c) The owner and operator of each new waste pile unit on which construction commences after January 29, 1992, each lateral expansion of a waste pile unit on which construction commences after July 29, 1992, and each replacement of an existing waste pile unit that is to commence reuse after July 29, 1992, must comply with the requirements of 40 CFR §264.251(c), as amended through January 29, 1992, at 57 FedReg 3488.

(d) The executive director may approve alternative design or operating practices to those specified in subsection (c) of this section if the owner or operator demonstrates to the executive director that such design and operating practices, together with location characteristics:

(1) Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in subsection (c) of this section; and

(2) Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(e) Subsection (c) of this section does not apply to monofills that are granted a waiver by the commission in accordance with §335.168(e) of this title (relating to Design and Operating Requirements (Surface Impoundments))

(f) The owner or operator of any replacement waste pile unit is exempt from subsection (c) of this section if:

(1) The existing unit was constructed in compliance with the design standards of §3004(o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

(2) There is no reason to believe that the liner is not functioning as designed.

(g) The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 100-year storm.

(h) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume from active portions resulting from a 24-hour, 100-year storm.

(i) Collection and holding facilities (e.g., tanks or basins) associated with run-on and run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

(j) If the pile contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the pile to control wind dispersal.

(k) The commission will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

Adopted January 30, 1996 Effective February 26, 1996

§335.171. Design and Operating Requirements (Land Treatment Units).

The commission will specify in the facility permit how the owner or operator will design, construct, operate, and maintain the land treatment unit in compliance with this section.

(1) The owner or operator must design, construct, operate, and maintain the unit to maximize the degradation, transformation, and immobilization of hazardous constituents in the treatment zone. The owner or operator must design, construct, operate, and maintain the unit in accord with all design and operating conditions that were used in the treatment demonstration under 40 Code of Federal Regulations §264.272. At a minimum, the commission will specify the following in the facility permit:

(A) The rate and method of waste application to the treatment zone;

(B) Measures to control soil pH;

(C) Measures to enhance microbial or chemical reactions (e.g., fertilization, tilling); and

(D) Measures to control the moisture content of the treatment zone.

(2) The owner or operator must design, construct, operate, and maintain the treatment zone to minimize run-off of hazardous constituents during the active life of the land treatment unit.

(3) The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the treatment zone during peak discharge from at least a 100-year storm.

(4) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume from active portions resulting from a 24-hour, 100-year storm.

(5) Collection and holding facilities (e.g., tanks or basins) associated with run-on and run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system.

(6) If the treatment zone contains particulate matter which may be subject to wind dispersal, the owner or operator must manage the unit to control wind dispersal.

(7) The owner or operator must inspect the unit weekly and after storms to detect evidence of:

(A) Deterioration, malfunctions, or improper operation of run-on and run-off control systems; and

(B) Improper functioning of wind dispersal control measures.

§335.172. Closure and Post-Closure Care (Land Treatment Units).

(a) During the closure period the owner or operator must:

(1) Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required under §335.171(1) of this title (relating to Design and Operating Requirements (Land Treatment Units)), except to the extent such measures are inconsistent with paragraph (8) of this subsection.

(2) Continue all operations in the treatment zone to minimize run-off of hazardous constituents as required under §335.171(3) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(3) Maintain the run-on control system required under §335.171(3) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(4) Maintain the run-off management system required under §335.171(4) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(5) Control wind dispersal of hazardous waste if required under §335.171(6) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(6) Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under 40 Code of Federal Regulations §264.276;

(7) Continue unsaturated zone monitoring in compliance with 40 Code of Federal Regulations §264.278, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone; and

(8) Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.

(b) For the purpose of complying with 40 Code of Federal Regulations §264.115, when closure is completed the owner or operator may submit to the executive director certification by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

(c) During the post-closure care period the owner or operator must:

(1) Continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in the treatment zone to the extent that such measures are consistent with other post-closure care activities;

(2) Maintain a vegetative cover over closed portions of the facility;

(3) Maintain the run-on control system required under §335.171(3) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(4) Maintain the run-off management system required under §335.171(4) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(5) Control wind dispersal of hazardous waste if required under §335.171(6) of this title (relating to Design and Operating Requirements (Land Treatment Units));

(6) Continue to comply with any prohibition or conditions concerning growth of food-chain crops under 40 Code of Federal Regulations §264.276; and

(7) Continue unsaturated zone monitoring in compliance with 40 Code of Federal Regulations §264.278, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone.

(d) The owner or operator is not subject to regulation under subsections (a)(8) and (c) of this section if the commission finds that the level of hazardous constituents in the treatment zone does not exceed the background value of those constituents by an amount that is statistically significant when using the test specified in paragraph (3) of this subsection. The owner or operator may submit such a demonstration to the executive director at any time during the closure or post-closure care periods.

(1) The owner or operator must establish background soil values and determine whether there is a statistically significant increase over those values for all hazardous constituents specified in the facility permit under 40 Code of Federal Regulations §264.271(b).

(A) Background soil values may be based on a one-time sampling of a background plot having characteristics similar to those of the treatment zone.

(B) The owner or operator must express background values and values for hazardous constituents in the treatment zone in a form necessary for the determination of statistically significant increases under paragraph (3) of this subsection.

(2) In taking samples used in the determination of background and treatment zone values, the owner or operator must take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical make-up of soil that has not been affected by solid waste or leakage from the treatment zone, and the soil within the treatment zone, respectively.

(3) In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent in the treatment zone to the background value for that constituent using a statistical procedure that provides reasonable confidence that constituent presence in the treatment zone will be identified. The owner or operator must use a statistical procedure that:

(A) Is appropriate for the distribution of the data used to establish background values; and

(B) Provides a reasonable balance between the probability of falsely identifying hazardous constituent presence in the treatment zone and the probability of failing to identify real presence in the treatment zone.

(e) The owner or operator is not subject to regulation under §§335.156-335.166 of this title (relating to Applicability of Groundwater Monitoring and Response; Required Programs; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program); if the commission finds that the owner or operator satisfies subsection (d) of this section and if unsaturated zone monitoring under 40 Code of Federal Regulations §264.278 indicates that hazardous constituents have not migrated beyond the treatment zone during the active life of the land treatment unit.

§335.173. Design and Operating Requirements (Landfills).

(a) Any landfill that is not covered by subsection (c) of this section or 40 Code of Federal Regulations §265.301(a) must have a liner system for all portions of the landfill (except for existing portions of such landfill). The liner system must have:

(1) A liner that is designed, constructed, and installed to prevent any migration of wastes out of the landfill to the adjacent subsurface soil or groundwater or surface water at anytime during the active life (including the closure period) of the landfill. The liner must be constructed of materials that prevent wastes from passing into the liner during the active life of the facility. The liner must be:

(A) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(B) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(C) Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(2) A liner that:

(A) Prevents any migration of wastes out of the landfill to the adjacent subsurface soil or groundwater or surface water at any time prior to the end of the post-closure care period; and

(B) Minimizes the rate of migration of wastes out of the landfill to the adjacent subsurface soil or groundwater or surface water so as not to pose a substantial present or potential hazard to human health and the environment; and

(3) A leachate collection and removal system immediately above the top liner that is designed, constructed, maintained, and operated to collect and remove leachate from the landfill. The commission will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 centimeters (one foot). The leachate collection and removal system must be:

(A) Constructed of materials that are:

(i) Chemically resistant to the waste managed in the landfill and the leachate expected to be generated; and

(ii) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the landfill; and

(B) Designed and operated to function without clogging through the scheduled closure of the landfill.

(b) The owner or operator will be exempted from the requirements of subsection (a) of this section if the commission finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see §335.159 of this title (relating to Hazardous Constituents)) into the

groundwater or surface water at any future time. In deciding whether to grant an exemption, the commission will consider:

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the landfill and groundwater or surface water; and

(4) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

(c) The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each lateral expansion of a landfill unit on which construction commences after July 29, 1992, and each replacement of an existing landfill unit that is to commence reuse after July 29, 1992, must comply with 40 CFR §264.301(c) as amended through January 29, 1992, at 57 FedReg 3489.

(d) The executive director may approve alternative design or operating practices to those specified in subsection (c) of this section if the owner or operator demonstrates to the executive director that such design and operating practices, together with location characteristics:

(1) Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in subsection (c) of this section; and

(2) Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(e) The double liner requirement set forth in subsection (c) of this section may be waived by the Commission for any monofill which contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the Toxicity Characteristics in 40 CFR §261.24, and is in compliance with either paragraph (1) or (2) of this subsection.

(1) The monofill:

(A) has at least one liner for which there is no evidence that such liner is leaking;

(B) is located more than one-quarter mile from an underground source of drinking water (as that term is defined in §331.2 of this title (relating to Definitions); and

(C) is in compliance with groundwater monitoring requirements of this subchapter.

(2) The owner or operator demonstrates that the monofill is located, designed and operated so as to assure that there will be no migration of any hazardous constituent into groundwater or surface water at any future time.

(f) The owner or operator of any replacement landfill unit is exempt from subsection (c) of this section if:

(1) The existing unit was constructed in compliance with the design standards of §3004(o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

(2) There is no reason to believe that the liner is not functioning as designed.

(g) The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 100-year storm.

(h) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume from active portions resulting from a 24-hour, 100-year storm.

(i) Collection and holding facilities (e.g., tanks or basins) associated with run-on and run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

(j) If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to control wind dispersal.

(k) The commission will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

Adopted January 30, 1996 Effective February 26, 1996

§335.174. Closure and Post-Closure Care (Landfills).

(a) At final closure of the landfill or upon closure of any cell, the owner or operator must cover the landfill or cell with a final cover designed and constructed to:

(1) Provide long-term minimization of migration of liquids through the closed landfill;

(2) Function with minimum maintenance;

(3) Promote drainage and minimize erosion or abrasion of the cover;

(4) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(5) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(b) After final closure, the owner or operator must comply with all post-closure requirements contained in 40 Code of Federal Regulations (CFR) §§264.117-264.120, including maintenance and monitoring throughout the post-closure care period (specified in the permit under 40 CFR §264.117). The owner or operator must:

(1) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(2) Continue to operate the leachate collection and removal system until leachate is no longer detected;

(3) Maintain and monitor the leak detection system in accordance with 40 CFR §§264.301(c)(3)(iv) and (4) and 264.303(c), and comply with all other applicable leak detection system requirements of this subchapter.

(4) Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of §§335.156-335.166 of this title (relating to Applicability of Groundwater Monitoring and Response; Required Programs; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program);

(5) Prevent run-on and run-off from eroding or otherwise damaging the final cover; and

(6) Protect and maintain surveyed benchmarks used in complying with 40 CFR §264.309.

Adopted January 30, 1996 Effective February 26, 1996

§335.175. Special Requirements for Bulk and Containerized Waste.

(a) Bulk or non-containerized liquid waste or waste containing free liquids may be placed in a landfill prior to May 8, 1985, only if before disposal, the liquid waste or waste containing free liquids is treated or stabilized, chemically or physically (e.g., by mixing with a sorbent solid), so that free liquids are no longer present.

(b) Effective May 8, 1985, the placement of bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids (whether or not sorbents have been added) in any landfill is prohibited.

(c) To demonstrate the absence or presence of free liquids in either a containerized or bulk waste, the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in 40 Code of Federal Regulations (CFR) §260.11 and in §335.30 of this title (relating to Incorporation of References).

(d) Effective November 8, 1985, the placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the commission, or the commission determines, that:

(1) The only reasonably available alternative to the placement in such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under interim status, which contains, or may reasonably be anticipated to contain hazardous waste; and

(2) Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water (as that term is defined in §331.2 of this title (relating to Definitions).

(e) Containers holding liquid waste or waste containing free liquids must not be placed in a landfill unless:

(1) The container is very small, such as an ampule;

(2) The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

(3) the container is a lab pack as defined in 40 CFR §264.316 and is disposed of in accordance with 40 CFR §264.316.

Adopted October 23, 1996 Effective November 20, 1996

§335.176. Special Requirements for Containers.

Unless they are very small, such as an ampule, containers must be crushed, shredded, or similarly reduced in volume to the maximum extent practical before burial in a landfill.

§335.177. General Performance Standard.

No person may cause, suffer, allow, or permit the storage, processing or disposal of hazardous waste in such a manner so as to cause:

(1) The discharge or imminent threat of discharge of hazardous waste, hazardous or non-hazardous constituents, or any other materials resulting from industrial solid waste activities, including but not limited to reaction products, into or adjacent to the waters in the state without specific authorization for such discharge from the Texas Water Commission;

(2) The creation and maintenance of a nuisance; or

(3) The endangerment of the public health or welfare.

§335.178. Cost Estimate for Closure.

In addition to the requirements of 40 Code of Federal Regulations §264.142 (excluding 40 Code of Federal Regulations §264.142(a)(2)), the closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility. A third party is a party who is neither the parent nor a subsidiary of the owner or operator (see definition of parent corporation in 40 Code of Federal Regulations §264.141(d)). Notwithstanding other closure costs, such estimate must also include the costs associated with third party removal, shipment off-site, and processing or disposal off-site of the following wastes to an authorized storage, processing or disposal facility:

(1) maximum inventory of wastes in storage and/or processing units, including but not limited to storage surface impoundments, waste piles, tanks and containers;

(2) wastes generated as a result of closure activities (e.g. decontamination, removal of liquids from surface impoundments or waste piles);

(3) contaminated stormwater; and

(4) leachate.

§335.179. Financial Assurance.

(a) Before a permit may be issued, amended, extended, or renewed for a solid waste facility for storage, processing, or disposal of hazardous waste, the commission shall determine the type or types of financial assurance which may be used by the applicant to comply with applicable regulations.

(b) Before hazardous waste may be received for storage, processing, or disposal at a solid waste facility for which a permit has been issued, amended, extended, or renewed, the permittee shall execute the financial assurance conditioned on the permittee's satisfactorily operating and closing the solid waste facility.

(c) If liability insurance is required of an applicant, the applicant may not use a claims made policy as security unless the applicant places in escrow as provided by the commission an amount sufficient to pay an additional year of premiums for renewal of the policy by the state on notice of termination of coverage.

(d) In addition to other forms of financial assurance authorized by the commission regulations, an applicant may use the letter of credit form of financial assurance if either the issuing institution or another institution which guarantees payment under the letter:

(1) is a bank chartered by the state or by the federal government; and

(2) is federally insured and its financial practices are regulated by the state or the federal government.

§335.180. Impact of New Hazardous Waste Management Facilities on Local Land Use.

In evaluating an application for a new hazardous waste management facility permit, the commission shall assess the impact of the proposed facility on local land use in the area, including any relevant land use plans in existence before publication of the notice of intent to file a solid waste permit application, or, if no notice of intent is filed, at the time the permit application is filed.

(1) In determining whether a new hazardous waste management facility is compatible with local land use, the commission shall consider, at a minimum:

(A) the location of industrial and other waste-generating facilities in the area;

(B) the amounts of hazardous waste generated by those facilities;

(C) the risks associated with the transportation of hazardous waste to the facility; and

(D) compatibility of the application with any land use plan adopted pursuant to the Texas Local Government Code, Chapter 211 (Vernon's Supplement 1991) or with local planning, zoning or land use laws and ordinances, in existence before publication of the notice of intent to file a solid waste permit application, or, if no notice of intent is filed, at the time the permit application is filed.

(2) In addition, the commission may consider any of the following criteria in determining compatibility of a facility with local land use:

(A) the risk of fires or explosions from improper storage and disposal methods;

(B) the distance from the site boundary to existing structures; and

(C) location of the facility in relation to high-hazard areas such as 100-year hurricane flood zones.

(3) Based on its assessment of the application with respect to local land use, the commission may deny an application in accordance with §305.66(i) of this title (relating to Revocation

and Suspension) or impose permit conditions deemed necessary to minimize or mitigate detrimental impacts on local land use, in accordance with §305.148 of this title (relating to impact of New Hazardous Waste Management Facilities on Local Land Use).

§335.181. Need for Specific Commercial Hazardous Waste Management Technologies.

In evaluating an application for a new commercial hazardous waste management facility permit, the commission shall determine the need for the specific technology proposed in the facility to manage new or increased volumes of waste generated in the state, in accordance with the Texas Solid Waste Disposal Act, §361.0232.

§335.182. Burden on Public Roadways by a New Commercial Hazardous Waste Management Facility.

In evaluating an application for a new commercial hazardous waste management facility permit, if the commission determines that a burden on public roadways will be imposed by the new commercial hazardous waste management facility, the commission shall require the applicant to pay the cost of the improvements necessary to minimize or mitigate the burden. The standards by which the commission shall make such a determination may include, but are not limited to, the requirements found in any of the following:

(1) Policy on Geometric Design of Highways and Streets, published by the American Association of State Highways and Transportation Officials (1990);

(2) Texas Manual on Uniform Traffic Control Devices;

(3) Highway Capacity Manual, published by the National Highway Institute;

(4) Highway Design Division and Procedures Manual, published by the Texas Department of Highways and Public Transportation; and

(5) Texas Flexible Pavement Design System.

§335.183. Emergency Response Capabilities Required for New Commercial Hazardous Waste Management Facilities.

(a) In evaluating an application for a new commercial hazardous waste management facility permit, the commission shall verify that:

(1) sufficient emergency response capabilities are available or will be available before the facility first receives waste, in the area in which the facility is located or proposed to be located; or

(2) the applicant has secured sufficient financial assurance in accordance with §305.50(12)(C)(ii) or (D) of this title (relating to Additional Requirements for an Application for a

Solid Waste Permit) to fund the emergency response personnel and equipment determined to be necessary by the commission, to manage a reasonable worst-case emergency condition associated with the operation of the facility.

(b) If the applicant for a new commercial hazardous waste management facility intends to use emergency response facilities that are not provided by the county or municipality in which the facility is located, the applicant must provide its own facilities or contract for emergency response facilities with an adjoining county, municipality, mutual aid association, or other appropriate entity. An appropriate entity would be defined as a professional organization, existing at the time of application, regularly doing business in the area of emergency and/or disaster response.

(c) If financial assurance is required pursuant to this section, it shall meet the following requirements:

(1) The financial assurance must benefit the county government or municipal government in the county in which the facility is located or proposed to be located, or both;

(2) The financial assurance must provide payment of the amount of the bond or other instrument to the governmental body or governmental bodies before the facility first receives waste, with a limitation that the money can only be spent for emergency response personnel and equipment; and

(3) The financial assurance must meet the requirements of §305.50(12)(C)(ii) or (D).

(d) In evaluating the sufficiency of emergency response capabilities, the commission shall consider the following:

(1) geology of the area;

(2) drainage patterns;

(3) seasonally prevailing winds and weather patterns;

(4) availability of all local emergency response resources, including fire, police hospital, etc. service;

(5) proximity of human exposure and/or sensitive environmental receptors;

(6) length of time for first response;

(7) trained response teams on-site (OSHA Specialist level), with a 24-hour response team;

(8) the amount of equipment and trained personnel available on a first-response basis, including the minimum amount of equipment on hand or available near the facility with hazardous materials capabilities;

(9) the ability to deal with various types of injuries;

(10) the ability to respond effectively to environmental contamination; and

(11) the efficiency and safety of any evacuation plan submitted by the applicant.